CLAIMS

1. A method for making a magnetic recording disk comprising:

(a) forming an underlayer on a disk substrate;

(b) sputter-depositing a magnetic layer onto the underlayer;

(c) sputter-depositing a carbon overcoat onto the magnetic layer; and

(d) applying to the carbon overcoat a corrosion-protective composition containing a corrosion-protective agent comprised of a metal salt of a perfluorinated polyether having at least one carboxylic acid group, a metal salt of a partially hydrogenated perfluorinated polyether having at least one carboxylic acid group, or a mixture thereof, thereby filling any pinholes in the carbon overcoat with the corrosion-protective composition.

2. The method of claim 1, wherein the magnetic layer is comprised of a metal, a metal alloy, or a metal oxide.

3. The method of claim 2, wherein the magnetic layer is comprised of a metal alloy.

4. The method of claim 3, wherein the metal allay is a cobalt-based alloy.

5. The method of claim 4, wherein the corrosion-protective agent comprises a metal salt of a perfluorinated polyether having two carboxylic acid groups.

6. The method of claim 1, wherein the underlayer comprises a chromium-containing material.

7. The method of claim 1, further comprising coating the carbon overcoat with a lubricating film of a perfluoropolyether prior to deposition of the carbon overcoat.

8. The method of claim 1, wherein the perfluorinated polyether is comprised of monomer units having the structure $-CF_2-O-$, $-CF_2-CF_2-O-$, $-CF(CF_3)-O-$, $-CF(CF_3)-CF_2-O-$, or a combination thereof.

9. The method of claim 1, wherein the corrosion-protective agent comprises a partially hydrogenated perfluorinated polyether comprised of monomer units of the structure $-CF_2-O-$, $-CF_2-CF_2-O-$, $-CF(CF_3)-O-$, $-CF(CF_3)-CF_2-O-$, or a combination thereof before hydrogenation.

10. The method of claim 9, wherein based upon the corresponding perfluorinated polyether up to about 50% of the fluorine atoms are substituted with a hydrogen atom in the partially hydrogenated perfluorinated polyether.

11. The method of claim 1, wherein the perfluorinated polyether is a linear polymer.

12. The method of claim 1, wherein the metal salt is an alkali metal salt.

13. The method of claim 12, wherein the alkali metal salt is a sodium salt.

14. The method of claim 1, wherein the perfluorinated polyether has a number average molecular weight in the range of approximately 500 to 10,000.

15. The method of claim 14, wherein the perfluorinated polyether has a number average molecular weight in the range of approximately 1000 to 5000.

16. The method of claim 15, wherein the perfluorinated polyether has a number average molecular weight in the range of approximately 2500 to 3500.